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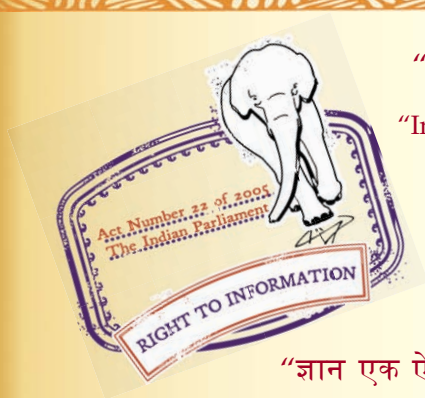
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IS 7003 (1973): Code for hygienic conditions for sago (SABOODANA) manufacturing units [FAD 15: Food Hygiene, Safety Management and Other Systems]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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(Reaffirmed 1995)

Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR SAGO (*SABOODANA*) MANUFACTURING UNITS

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**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR SAGO (*SABOODANA*) MANUFACTURING UNITS

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AMENDMENT NO. 1 DECEMBER 1983
TO
IS:7003-1973 CODE FOR HYGIENIC CONDITIONS FOR
SAGO (*SABOODANA*) MANUFACTURING UNITS

Alterations

(Page 8, clause 9.1, line 2) - Substitute 'bicarbonate (1 to 1.5 percent) or' for 'bicarbonate or'.

(Page 9, clause 11.1, lines 6 and 7) - Delete the following:

'urine; and blood examination for venereal diseases.'

(Page 9, clause 11.3) - Substitute the following for the existing clause:

'11.3 All employees shall be inoculated against typhoid and paratyphoid-A diseases on their first appointment and thereafter, once in every five years. In case of epidemics, all workers shall be inoculated. A record shall be maintained.'

Indian Standard

CODE FOR HYGIENIC CONDITIONS FOR SAGO (*SABOODANA*) MANUFACTURING UNITS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 April 1973, after the draft finalized by the Food Hygiene, Sampling and Analysis Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Consumers do not have the available knowledge or means of determining the hygienic quality of the food they purchase. For this they rely on the hygienic standards of various industries that prepare and handle foods. This code has been prepared keeping in view that unless the factory producing the food is governed by a strict hygienic code in respect of layout, plant and personnel, the quality of the food produced cannot be considered as safe. Since sago is mainly consumed mostly by children and convalescents, the aspect of hygiene during its manufacture assumes special significance.

0.3 This code is an adjunct to IS : 2491-1972* and it covers requirements specific to sago (*SABOODANA*) manufacturing units.

0.4 This code is subject to the provisions of the Factories Act, 1948 and the Prevention of Food Adulteration Act, 1954, and the Rules framed thereunder; as amended from time to time.

0.5 The basic principles of hygiene underlining the technical advice in this code should be applied with appropriate modifications to all sago manufacturing units.

1. SCOPE

1.1 This code prescribes the hygienic conditions required for establishing and maintaining sago (*SABOODANA*) manufacturing units.

2. SITE

2.1 The unit shall preferably be situated in an open, clean and healthy surroundings away from roadside where lot of dust arises due to vehicular

*Code for hygienic conditions for food processing units (first revision).

traffic; garbage dumps; cattle sheds; open sewage drains or other places likely to breed flies. It shall be at a considerable distance from other industrial factories spreading dust, smoke and disagreeable odours. There should also be facilities for the disposal of waste.

3. BUILDING

3.1 The structure shall be of permanent nature and shall be suitable in size, construction and design to facilitate maintenance and hygienic operations for processing purposes. It should provide sufficient space for housing of equipment and storage of materials (raw as well as finished) as is necessary for hygienic operations. The material of construction shall be of brick, plaster, cement, concrete, tile or any other equivalent materials which ensure cleanliness.

3.2 No portion of building shall be used for domestic purposes or other types of food preparations unless separated by suitable partitions or locations or other effective means.

3.3 Single storey building should have a clear internal height of 5 to 6 metres to provide for natural light and air circulation.

3.4 Floor — The floor shall be smooth and should be constructed of impervious material which can be cleaned easily. A slope of 1 to 1.5 cm per linear metre is considered necessary for proper drainage.

3.5 Walls and Ceilings — Interior surface of the walls should be smooth and non-absorbent to prevent accumulation of dust and vapours and facilitate cleaning. It should preferably be covered with washable paint or glazed tiles up to a height of 1 to 1.5 m. Walls and ceilings should be of light colour, possibly white to minimize the contrast between work and surroundings and to give maximum reflection for better lighting and reducing the shadows. The ceiling should be painted with light colour for good illumination, cheerful surroundings and cleanliness. The junction of the floor with the walls and the junction between two walls should be rounded to prevent accumulation of dust.

3.6 Sheds — The sheds where the peeling operation of tapioca tubers is done shall have cemented floors with a slope of 1 to 1.5 cm per linear metre and shall be provided with wooden benches in straight rows for facilitating orderly seating arrangement of labourers. The sheds shall be suitably covered.

3.7 Sedimentation Tanks — The sedimentation tanks shall be constructed of cement concrete. The floor shall be smooth, free from cracks and easily cleanable. The edges where the wall meets the floor shall be suitably rounded off.

3.8 Drainage — Effective drainage should be provided to drain off a large quantity of water used for washing of the raw material, machinery, equipment, furniture, floor, etc, 15 to 30 cm half circular drains with glazed pipe at the bottom should be provided. The slope of the floor should be towards the drains and the farthest end of the floor from the drain should not be more than 5 m. The drain openings should be provided with screen traps to prevent solid matter from clogging the drains. The ends of the drains leading to the outside of the factory should be made rodentproof by providing screens. The screens shall be examined periodically and replaced or cleaned, if necessary. The drains should be covered with mesh type cover to prevent habitation of cockroaches and rodents in closed areas of the drain.

3.9 The unit shall be adequately lighted and ventilated keeping in mind the number of workers, their hours of work and nature of operation. Ventilation and lighting shall also be in accordance with the factories Act, 1948, as amended from time to time. Proper ventilation is essential to prevent condensation and drippage. Exhaust fans should be provided, where necessary.

3.10 The unit shall be made flyproof, rodentproof and birdproof and should be provided with self-closing double doors. The doors and windows should be covered with flyproof wire-gauze, and they should open outwards.

3.11 The rooms and the area surrounding the building should be kept clean and dust-free.

3.12 The building shall be maintained in proper state of repair and cleanliness at all times.

4. PLANT LAYOUT

4.1 The machinery and equipment should be placed with sufficient space to permit easy accessibility for cleaning and maintenance. It is desirable that at least 50 percent space in the factory should be free for movement of personnel.

4.2 Fast moving belts, gears and other hazardous parts of machinery should be properly guarded. Fire extinguishers should be placed at an easily accessible place and emergency exits shall be available for the employees. The provision for safety of workers given in the Factories Act, 1948 as amended up to date should be taken into consideration in the layout of the factory.

5. FACTORY HYGIENE

5.1 Disposal of Wastes and Refuse — Suitable facilities for hygienic disposal of wastes and for the collection and removal of refuse, floor sweepings and dirt in covered containers should be provided.

5.1.1 Refuse shall be collected in covered receptacles and shall not be allowed to scatter on the floor of the unit. It should be disposed of in a manner which is not detrimental to the hygiene of the surroundings of the disposal.

5.2 Adequate measures shall be taken to prevent mould growth on equipment and internal structures of processing and storage rooms. Adequate steps shall be taken to prevent infestation of cockroaches and other household pests.

5.3 When pesticides are used, care shall be exercised to prevent contamination of equipment, and other materials. Under no circumstances shall these be used during processing.

5.4 Floors and drains shall be kept clean. In the manufacturing room, drain shall be provided with detachable covers.

5.5 On no account shall the manufacturing or processing room be used or converted to a store room.

5.6 No lavatory, sink, cesspool, or garbage shall be so situated or maintained that odours or fumes therefrom pervade any room where the product is prepared or stored.

5.7 Proper places shall be provided for storage of brooms, brushes, buckets and other cleaning gear.

5.8 The effluents shall be disposed of from the unit in a manner which is not detrimental to the hygiene of the unit and its surroundings. The effluents shall not be let off on road or adjacent fields.

5.9 Window glass and light fittings shall be maintained clean and dust free at all times.

5.10 There shall be no cobwebs in any part of the unit. Birds and domestic animals shall not be allowed in any part of the unit.

6. RAW MATERIAL HANDLING

6.1 Tapioca tubers to be accepted for processing should not contain decomposed toxic or extraneous substances which cannot be removed to acceptable levels during processing. Raw materials so selected should be stored in premises that will protect against contamination and infestation and minimize deterioration. The tapioca tubers showing signs of insect or fungal infestation should be fumigated with a mixture of ethylene dibromide and ethyl bromide at the rate of 0.02 kg/m³. Raw materials, before being introduced into the processing line should be inspected, sorted so as to remove undesirable materials. Raw materials should be washed to remove soil or other contamination and the water so used

should not be recirculated unless it has been suitably treated to maintain in a condition which will not cause health hazard.

The processing should be so done as to permit expeditious handling of consecutive units in production under conditions which would prevent contamination, deterioration, spoilage or development of infectious or toxigenic micro-organisms. The materials should be stored in clean premises which should provide appropriate protection from contamination or deterioration. Necessary methods of preservation and controls should be applied so as to protect against contamination, infestation or development of public health hazard.

7. PROCESSING HYGIENE

7.1 Disintegration of Tubers — The disintegration of tapioca tubers shall be done by suitable means preferably by modern saw-tooth rasps. The slurry of the material obtained after disintegration shall be properly sieved to remove suspended dirt and fibrous matter before it is channelled to the sedimentation tank. During sieving, suitable brushes shall be used. Bare hands shall not be used for the purpose.

7.2 Sedimentation of Starch — The sedimentation of starch shall be carried out in covered tanks provided with mechanical puddles for stirring the contents. In order to avoid fermentation of starch in these tanks by putrefactive and gas producing organisms present in the air, water, adhering dust; use of preservatives like sulphur dioxide may be made. The sedimentation tanks shall be periodically washed to clean them of residual starch and grit.

7.3 Drying of Starch — The yards used for sun-drying of starch shall be specially constructed and divided into compartments providing walking space all round. The spreading, raking, and collection of starch shall be done only by means of shovels and long handles. Use of bare hands and feet in collection of starch shall not be allowed.

7.4 Globulation, Roasting and Drying — The mechanical shakers used for globulation of starch shall be suitably cleaned before starch is fed into them for globulation. Similarly, the roasting operation shall be done only in the clean equipment. The drying of sago globules shall be done only in cabinet dryers. The sun drying of sago globules shall be avoided, since it usually involves trampling of dried sago by bare feet for collection and for breaking the lumps formed during the processing.

7.5 Packing and Storage of Sago — As far as possible, the operation of packing of sago globules shall be mechanized. In case, packing is done manually, the labourers shall wear clean rubber gloves. The jute bags and other paper packages used for packing sago globules shall be clean and stored in proper hygienic manner.

8. INSTALLATION AND CONSTRUCTION OF EQUIPMENT

8.1 All equipment shall be installed on a foundation of durable, easily cleanable material.

8.2 Equipment shall be placed away from the walls with a view to providing facilities for inspection and cleaning.

8.3 Pipelines for conveying the product from one point to the other should be direct and as short as possible and without any dead ends, so that they can be cleaned internally by flushing with water. Valves and taps in the line should be of removable type and should have full way opening to avoid formation of small pockets of stagnant food.

8.4 The equipment should be constructed and installed in such a manner as to facilitate efficient cleaning and sanitization and easy dismantling and assembling of all the parts that come in contact with the product. All the equipment, containers, lids and pipes shall be smooth, impervious and corrosion resistant. All the materials used for construction of those surfaces which come into contact with the product shall be non-toxic.

8.5 All electrical connections, such as switch boxes, control boxes, and conduit cables shall be installed in such a way as to facilitate proper cleaning. All equipment coming into contact with raw material or the products shall be kept clean.

8.6 All the processing system shall be thoroughly cleaned with chlorinated water (50 ppm) every 3 or 4 h to remove the micro-organism, if any.

9. EQUIPMENT AND CONTAINERS CLEANLINESS

9.1 All the containers and lids should be cleaned thoroughly with the use of sodium carbonate or sodium bicarbonate or any other suitable detergent solution and sanitized with at least 50 ppm chlorine solution prior to their use. The residual chlorine may be removed by flushing the equipment with potable water before use.

10. WATER SUPPLY

10.1 There shall be an adequate supply of safe and potable water (*see* IS : 4251-1967*). Running water under pressure shall be easily accessible to all rooms and areas in which food is handled and equipment are washed.

10.2 The equipment shall be so installed and used that back siphonage of liquid into the potable water lines is precluded.

*Quality tolerances for water for processed food industry.

10.3 Hot or cold water in ample supply shall be provided for plant clean-up needs, where necessary.

10.4 The storage tanks for water should, unless completely sealed, be kept covered with tight fitting lids, examined regularly and cleaned out at least once every six months. The date of the last cleaning and next cleaning shall be prominently displayed on the storage tanks.

10.5 The water shall be periodically examined as desired by the licensing authority chemically and bacteriologically. A record of such examination shall be maintained.

11. EMPLOYEE HYGIENE

11.1 Every person employed for food handling shall be medically examined by an authorized registered medical practitioner and the examination shall include X-Ray of the chest for tuberculosis. The examination shall also include : examination of stool for protozoal and helminthic infestation for those parasites which are transmitted by ingestion, and for the presence of *Salmonella*, *Shigella* species and *Vibrio cholerae*; urine; and blood examination for venereal diseases. Subsequently, the employee shall be medically examined once in a year or more frequently, if necessary, to ensure that he is medically fit and free from communicable diseases.

11.1.1 It shall be impressed on employees that they should notify the medical officer and management, cases of fever, vomiting, diarrhoea, typhoid, dysentery, boils, cuts and sores and ulcers (however small), discharging ears and notifiable diseases occurring in their own homes and families.

11.1.2 No worker who is suspected to be suffering from any of the disorders listed in 11.1.1 shall be permitted to work inside the unit. The supervisor shall check the personal hygiene of the workers before the start of work and whenever they enter any processing room after any absence.

11.2 Employees shall keep their finger nails short and clean and wash their hands with soap or detergent and water before commencing work and after each absence, specially after using sanitary conveniences. Towels used for drying hands should be clean. No worker shall allow his hands or any part of his body or clothing to come in contact with the food. He should adopt strict hygienic practices so as to avoid adding any microbial contamination to the material.

11.3 All employees shall be inoculated and vaccinated against the enteric groups of diseases once a year and against smallpox once in two years. In case of an epidemic all workers shall be inoculated. A record shall be maintained.

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11.4 No worker shall be allowed to work without proper clothing and foot wear.

11.5 Employees shall be provided with clean uniforms (preferably white) or aprons or both and clean washable caps, where necessary.

11.5.1 Separate room or place for changing the clothes shall be provided. The clothes shall not be hung in any processing room.

11.5.2 The uniforms shall not be worn outside the plant but put on just before starting the work and changed when leaving.

11.6 Eating, spitting, nose cleaning or the use of tobacco in any form including smoking or chewing betel leaves shall be prohibited within the manufacturing, packing and storage area of the unit. Notice to this effect shall be prominently displayed and enforced.

11.7 Sufficient and suitable sanitary conveniences shall be provided, maintained and kept clean in every factory. The conveniences shall be properly lighted. Separate conveniences shall be provided for each sex. No convenience shall open directly into any work room in the unit. The conveniences shall always be maintained clean and in good repairs.

11.8 Sufficient number of wash basins with adequate provision of nail brushes, soap and towels, latrines and urinals in the prescribed manner should be provided, conveniently situated and accessible to workers at all times while they are at the factory (*see* also Table 3 of IS : 1172-1971*). The wash basins shall be installed in or alongside the sanitary conveniences.

*Code for basic requirements for water supply, drainage and sanitation (*second revision*).

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